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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,568	04/13/2004	Robin J. Harvey	B-3750NP 621449-5	6560

7590 06/29/2005

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EXAMINER

PHAN, THO GLA

ART UNIT PAPER NUMBER

2821

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/824,568

Applicant(s)

HARVEY, ROBIN J.

Examiner

Tho G. Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-11 and 15-21 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/13/04, 7/13/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-5, 9-11, 15-17 and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Spencer (5,757,323).

Spencer in figures 1-4 discloses a central dielectric portion (along portion 5 at reference center 7, best seen in figure 4) having a first side and a second side opposite the first side; a first dielectric taper portion (at 3, column 2, line 17) having a first dielectric taper portion proximal side connected with the first side of the central dielectric portion and a first dielectric taper portion distal side; and a second dielectric taper portion (the taper ended portion "un-numbered" inside the tapered portion 4, see figure 4, column 2, lines 14-15) having a second dielectric taper portion proximal side connected with the second side of the central dielectric portion and a second dielectric taper portion distal side, a plane 8 supporting the plurality of wave antennas, wherein the plane has a first plane side and a second plane side and the wave antennas are inserted in the plane, the first dielectric taper portion located above the first plane side, and the second dielectric taper portion located below the second plane side, wherein the wave antennas are inserted in the plane perpendicularly to the plane and wherein the wave antennas are disposed in an array configuration (see figure 1), wherein at least one between the first dielectric taper portion and the second dielectric taper portion is bendable (see figure 5), and the central dielectric portion acting as a waveguide (i.e. the tubular guide 5 acts a waveguide where

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it directs the energy radiated from the patch 1 to a secondary antenna such as a lens 22, abstract, figure 3). Regarding claim 15, Spencer also teaches a central dielectric portion, acting as a waveguide (i.e. the tubular guide 5 acts a waveguide where it directs the energy radiated from the patch 1 to a secondary antenna such as a lens 22, abstract, figure 3) having a first side and a second side opposite the first side; a first dielectric taper portion (figure 4, column 2, lines 14-15) having a first dielectric taper proximate end connected with the first side of the central dielectric portion and a first dielectric taper distal end; a second dielectric taper portion (at 3, column 2, line 17) having a second taper proximate end connected with the second side of the central dielectric portion and a second dielectric taper distal end, wherein the distal ends of the first dielectric taper portions form a first surface of the array and the distal ends of the second taper portions form a second surface (the end portions of the rods forming a uniform planar air surface, figure 1a), and wherein incoming waves are captured (received the signals radiated from the patches 1, figure 1) by the first dielectric taper portions and re-emitted (transmitted/radiated the received signals from the patch to the lens 22, figure 3 and abstract) by the second taper portions, wherein the first/second surface is selected from a group comprising a planar surface (the end portions of the rods forming a uniform planar air surface, figure 1a).

Regarding claims 20-21, Spencer also teaches a central dielectric portion (along portion 5 at reference center 7, best seen in figure 4) having a first side and a second side opposite the first side; a first dielectric taper portion (at 3, column 2, line 17) having a first dielectric taper portion proximal side connected with the first side of the central dielectric portion and a first dielectric taper portion distal side, the first dielectric taper portion proximal side having a first dielectric taper proximal width (adjacent the reference center 7), the first dielectric taper portion distal

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side having a first dielectric taper distal width (end portion of the rod), the first dielectric taper proximal width being greater than the first dielectric taper distal width; and a second dielectric taper portion (figure 4, column 2, lines 14-15) having a second dielectric taper portion proximal side (adjacent the reference center 7) connected with the second side of the central dielectric portion and a second dielectric taper portion distal side (end portion of the rod), the second dielectric taper portion proximal side having a second dielectric taper proximal width, the second dielectric taper portion distal side having a second dielectric taper distal width, the second dielectric taper proximal width being greater than the second dielectric taper distal width.

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spencer in view of Bhattacharyya et al (6,137,450).

Spencer has been discussed above but fails to teach the antennas are disposed in a substantially hexagonal configuration. However, Bhattacharyya et al in figure 1 disclose the antennas are disposed in a substantially hexagonal configuration. It would have been obvious to provide the antennas are disposed in a substantially hexagonal configuration as taught by Bhattacharyya et al for the purpose of minimizing the number of elements in the array antenna.

*Allowable Subject Matter*

4. Claims 12-14 are allowed.
5. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:  
The claims are allowable over the art of record because the prior art does not teach wherein the central dielectric portions have a length, the length being variable among individual wave antennas, the array exhibiting a lens-shaped periphery by virtue of the variable length.

*Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Jones, Dragone, Newham, Kawahata, Verstraeten and Yuanzhu are cited as of interested and illustrated a similar structure to a wave antenna system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho G. Phan whose telephone number is 571-272-1826. The examiner can normally be reached on M-F, 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tho G Phan  
Primary Examiner  
Art Unit 2821